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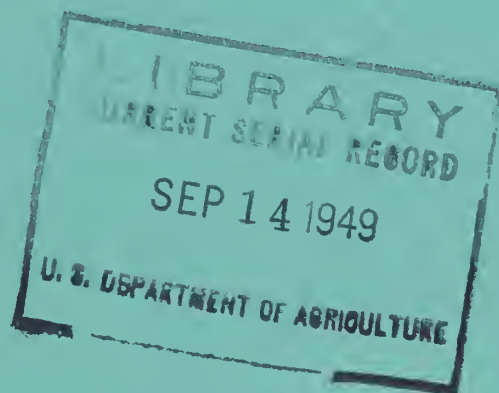
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FEDERAL-STATE COOPERATIVE SNOW SURVEYS and IRRIGATION WATER FORECASTS

for
MONTANA

May 1, 1949



by
Montana Agricultural Experiment Station
and
Division of Irrigation, Soil Conservation Service
United States Department of Agriculture

in cooperation with

U.S. Forest Service •••• U.S. National Park Service •••• U.S. Bureau of Reclamation •••• U.S. Geological Survey
and State Engineer of Montana

FEDERAL-STATE COOPERATIVE
SNOW SURVEY AND IRRIGATION WATER FORECASTS

FOR

MONTANA

Upper Missouri and Upper Columbia River

Basins

Report Prepared
by

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and

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Soil Conservation Service

and

Montana Agricultural Experimental Station
Bozeman, Montana

MONTANA

Summary of Snow Storage Conditions

* * * * *

* Snow survey measurements made on or about May 1, indicate that there
* will be a "GOOD" supply of water for irrigation use this season, with
* sustained flows late this summer from ground water.
*

* Although the snow pack has diminished rapidly from the lower elevations
* the stream flow this past month has only been slightly above the average.
* The loss in water content from April 1 measurements on all courses has
* been extremely large and has not reflected itself in an abnormally high
* stream discharge. The high elevation courses are maintaining an above
* average water content despite the unusual loss in water during the month.
* The Columbia River Basin measurements indicate a higher percentage of
* average than the Missouri Basin. Water Content on the Kootenai, Flathead,
* Pend Oreille, and Bitterroot appear to be somewhat higher than the Upper
* Clark Fork. Indications are that these basins will have a good supply
* of water for late summer use.
*

* Ground water measurements throughout the state indicate a great rise in
* water table above measurements taken last year at this date. A good
* portion of this water will make itself evident in sustained flow during
* the summer months.
*

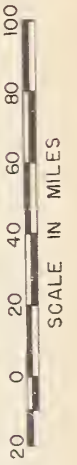
* Precipitation has been below average for the state during the month of
* April and average temperatures have been from 5 to 10 degrees above
* average for the month.
*

* Reservoir storage is good for this time of year and most reservoirs have
* been drawn down to receive the anticipated flow of water from the snow
* pack at high elevations.
*

* * * * *

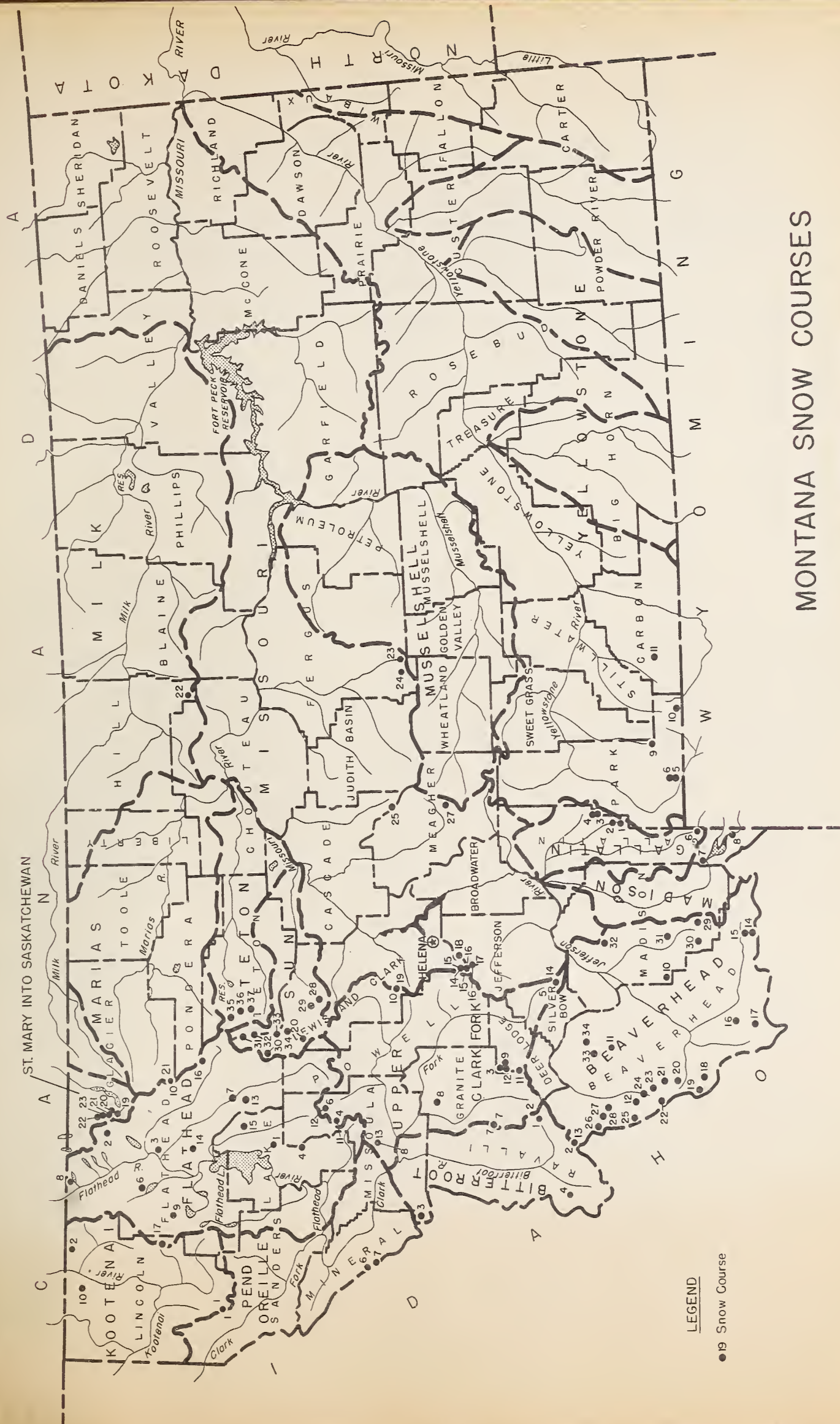
MONTANA SNOW COURSES

JANUARY, 1949



LEGEND

● 19 Snow Course



INDEX TO MONTANA SNOW COURSES

Name	Montana No.	Elev.	Location			Record Began	Measuring Dates ^a	Measured By ^b	Name	Montana No.	Elev.	Location			Record Began	Measuring Dates ^a	Measured By ^b
			Sec. Lat.	Twp. Range	Long.							Sec. Lat.	Twp. Range	Long.			
MISSOURI RIVER DRAINAGE									COLUMBIA DRAINAGE								
JEFFERSON RIVER									KOOTENAI RIVER								
White Pine Ridge	16	8850	18	14S	9W	1948	3,4	1	Barce Mountain	1	6000	1	25N	31W	1937	4,5	1
Limekiln	17	6950	5	1bS	9W	1948	3,4	1	Bluebird Basin	2	6800	24	37N	26W	1937	4,5	1
Lakeview Ridge	14	7400	27	14S	2W	1948	3,4,5	9	Red Mountain	10	6000	4	36N	29W	1937	3,4,5	1
Lakeview Canyon	15	6930	26	14S	2W	1948	3,4,5	9	UPPER CLARK FORK								
Trail Creek	18	7050	15	10S	15W	1948	3,4	1	Chessman Reservoir	1	6200	2	8N	5W	1936	1,2,3,4,5	2
Lemhi Pass	19	7460	9	10S	15W	1948	3,4	1	East Fork Ranger Station	2	5400	16	2N	17W	1937	4	1
Terrell Creek	20	6650	14	9S	15W	1948	3,4	1	Intergaard	3	6450	6	5b	13a	1939	2,3,4	3
Selway Junction	21	6800	27	8S	15W	1948	3,4	1	North Fork Jocko	4	6330	3	17N	17W	1941	3,4	4
Gold Stone	22	8100	11	8S	16W	1946	3,4	1	Pipestone Pass	5	7200	11	1N	7W	1938	2,3,4,5	1
Bloody Dick	23	7600	12	8S	16W	1948	3,4	1	Rainy Lake	6	4300	11	16N	16W	1947	3,4,5	1
Jahnie Creek	24	7340	25	7S	16W	1948	3,4	1	Skalkaho Summit	7	7258	30	6b	17W	1937	4,5	1
Minar Forks	25	7500	24	6S	17W	1948	3,4	1	Slide Rock Mountain	8	7100	26	10N	16W	1937	4	1
Minar Lake	12	6720	10	6S	16W	1945	3,4,5	1	Southern Cross	9	6500	9	5N	13W	1939	2,3,4	3
Big Hole Pass	26	7440	28	3S	16W	1948	3,4	1	Stemple Pass	10	6900	16	13N	7W	1934	3,4,5	2
Below Big Hole Pass	27	6900	24	3S	16W	1946	3,4	1	Storm Lake No. 2	11	7780	19	4N	13W	1939	4,5	1
East Boundary	28	6700	22	3S	17W	1948	3,4	1	Stuart Mill	12	6500	19	5b	13W	1939	2,3,4	3
Gibbons Pass	13	7100	4	2S	17W	1934	2,3,4,5	1,2	Stuart Mountain #1	13	7400	6	14N	18W	1936	3,4,5	1
Elk Horn	11	8450	16	4S	12W	1934	3,4,5	2	Tennile Creek, Lower	14	6250	13	8N	6W	1935	1,2,3,4,5	2
Anderson Meadow	33	7000	18	3S	12W	1948	3,4	1	Tennile Creek, Middle	15	6800	13	8N	6W	1934	1,2,3,4,5	2
Wise River	34	6300	15	2S	12W	1948	3,4	1	Tennile Creek, Upper	16	8000	19	8N	5W	1935	1,2,3,4,5	2
Upper Cottonwood	29	8400	30	10S	2W	1948	3,4	1	BITTERROOT RIVER								
Cottonwood	30	5500	25	10S	3W	1948	3,4	1	East Fork Ranger Station	1	5400	16	2N	17W	1937	4	1
Vigilante	31	6125	28	9S	3W	1948	3,4	1	Gibbons Pass	2	7100	4	2S	16W	1934	2,3,4,5	1,2
Flashlight	10	6850	22	8S	7W	1945	3,4,5	1	Mud Creek Pasture	3	4500	24	11b	24W	1937	2,3,4,5	1
Tobacco Root	32	6500	18	4S	3W	1948	3,4	1	Neperce Camp	4	5580	19±20	1S	23W	1937	3,4	1
MADISON RIVER									Skalkaho Summit	7	7258	30	5N	17W	1937	4,5	1
Hebgen	7	6550	22	11S	3E	1934	1,2,3,4,5	2	Stuart Mountain #1	8	7400	6	14N	18W	1936	3,4,5	1
West Yellowstone	8	6700	34±35	13S	5E	1934	1,2,3,4,5	2	FLATHEAD RIVER								
GALLATIN RIVER									Big Creek	1	6700	6±7	22N	18W	1941	4,5	4
Devil's Slide	1	6100	14	5S	6E	1935	3,4,5	2,6	Cattle Queen	2	4700	7	35N	17W	1939	3,4	5
Hood Meadow Extension	2	6600	22	4S	6E	1934	3,4,5	2,6	Desert Mountain	3	5600	24	31N	19W	1937	4,5	1
Mythic Lake #1 & #2	3	6600	30	3S	7E	1935	1,2,3,4	6,7	Elk Mountain	4	6750	1	20N	19W	1941	3,4	4
New World Trail	4	6700	24	3S	6E	1939	3,4	6,7	Goat Mountain	5	7000	47°39'	112°54'	1934	3,4	2	
21 Mile	6	7150	1	11S	5E	1934	2,3,4,5	2	Hell Roaring Creek Divide	6	5770	35	32N	22W	1942	4,5	1
YELLOWSTONE RIVER									Eorse Ridge c	7	5200	8	25N	15W	1937	4,5	1
Crevice #1	5	8400	29	6S	9E	1935	3,4	1	Kishenehn	8	4300	7	37N	21W	1946	4,5	5
Crevice #2	6	8150	26	9S	9E	1935	3,4	1	Logan Creek	9	4300	34	30N	24W	1937	3,4	1
Independence	9	8000	22	7S	12E	1940	3,4	6	Marias Pass	10	5250	46°19'	113°21'	1934	1,2,3,4,5	2	
Cooke City	10	7400	25	9S	14E	1937	1,2,3,4,5	5	North Fork Jocko	11	6330	3	17N	17W	1941	3,4,5	4
Camp Sena	11	7590	2	6S	18E	1938	3,4	1	Rainy Lake	12	4300	11	16N	16W	1947	3,4,5	1
MUSSELSHELL RIVER									Spotted Bear Mountain	13	7000	23	25b	15W	1948	3,4	1
Grasshopper	27	7000	19	9N	8E	1936	3,4	1,6	Strawberry Lake	14	6500	11	26b	19W	1948	3,4	1
MISSOURI RIVER MAIN STEM									Trinkus Lake	15	6500	9	25N	17W	1948	3,4	1
Pipestone Pass	14	7200	11	1N	7W	1936	2,3,4,5	1	Snow Laboratory Station #13	16	5240	10	25N	14W	1946	1,2,3,4,5	2
Tennile Creek, Lower	15	6250	13	8N	6W	1935	1,2,3,4,5	2	Brush Creek	17	5000	13	30N	26W	1937	3,4	1
Tennile Creek, Middle	16	6800	13	8N	6W	1934	1,2,3,4,5	2	PEND OREILLE RIVER								
Tennile Creek, Upper	17	8000	19	8N	6W	1935	1,2,3,4,5	2	Barce Mountain	1	6000	1	25N	31W	1937	4,5	1
Chessman Reservoir	18	6200	2	8N	5W	1936	1,2,3,4,5	2	Freezeout Summit	6	7000	21	15N	27W	1937	3,4	1
Stemple Pass	19	6900	16	13N	7W	1934	3,4,5	2	Hoodoo Creek	7	6200	9±16	14N	27W	1937	3,4	1
Crystal Lake	24	6100	24	12N	17E	1941	3,4	1,6	SASKATCHEWAN RIVER DRAINAGE								
Kings Hill	25	7950	35	13N	7E	1937	3,4,5	2	ST. MARY RIVER								
Grasshopper	27	7000	19	9N	8E	1938	3,4	1,6	Piegan Pass #6	19	6500	48°45'	113°42'	1922	b	2,8	
SUN RIVER									Piegan Pass #4	20	5000	48°46'	113°40'	1922	b	2,8	
My Lake	30	7300	21	23N	12W	1949	3,4	1	Mount Allen	21	7000	48°44'	113°40'	1922	b	2,8	
Wrong Creek Ridge	31	6800	17	25N	10W	1949	3,4	1	Flarmigan #8	22	5800	48°50'	113°42'	1922	b	2,8	
Wrong Creek	32	5700	32	25N	10W	1949	3,4	1	Iceberg Lake	23	6000	48°50'	113°42'	1922	b	2,8	
Gates Park	33	5300	31	24N	10W	1949	3,4	1	a. Numerals 1,2,3,4, and 5 refer to January 1, February 1, March 1, April 1, and May 1.								
Catin Creek	34	5400	33	23N	10W	1949	3,4	1	b. Numerals refer to Agency that secures the snow survey, as follows:								
b Bull	28	5600	36	20N	10W	1948	3,4	1	1. U. S. Forest Service								
Bench Mark	29	5500	9	20N	10W	1948	3,4	1	2. U. S. Geological Survey and U. S. Engineer Corps								
Goat Mountain	20	7000	21	22N	10W	1934	3,4	2	3. Montana Power Company								
TETON RIVER									4. U. S. Indian Service								
Fright Creek	35	6000	13	26N	10W	1948	3,4	1	5. National Park Service								
West Fork	36	6000	6	25N	9W	1948	3,4	1	6. Montana Experiment Station								
Waldron	37	5600	16	26N	5W	1948	3,4	1	7. City of Bozeman								
MARIAS RIVER									8. Dominion Water and Power bureau								
Marias Pass	21	5250	48°19'	113°21'	1934	1,2,3,4,5	2	9. U. S. Fish and Wildlife Service									
MILE RIVER									c. Discontinued 1943-1947								
Rocky Boy	22	5200	15	28N	16E	1942	3,4	6									

STORAGE IN RESERVOIRS OF MONTANA

MISSOURI RIVER BASIN

AS OF APRIL 30

RESERVOIR	Location or on Diversion from	Usable Capacity	Contents This Month End	Contents April 30 1948
Lake Sewall	Missouri	37,800	27,120	23,680
Hauser Lake	Missouri	52,090	37,690	31,440
Ft. Peck Res.	Missouri	19,000,000	13,330,000	13,790,000
Ruby Res.	Ruby	38,500		
Harrison Lake	Willow Cr.	17,760		
Hebgen Res.	Madison River	345,000	224,300	185,300
Madison Res.	Madison River	41,000	37,480	36,390
Smith River Res.	Smith River	10,700		
Gibson Res.	N. Fk. Sun River	105,000	56,120	71,490
Willow Creek	N. Fk. Sun-Willow Cr.	32,300	20,830	19,060
Pishkun Res.	N. Fk. Sun River	32,000	25,550	20,840
Lower Two Medicine L.	Two Medicine River	14,000	0	0
Four Horns Res.	Badger Creek	20,000	10,900	7,420
Birch Creek Res.	Birch Creek	30,000		27,210
Lake Francis Res.	Birch Creek	112,000		107,950
Ackley Lake	Judith River	5,820		4,810
Durand Res.	N. Fk. Musselshell	7,010	5,760	7,030
Dead Man Basin	Musselshell River	52,500		
Martinsdale Res.	So. Fk. Musselshell	23,100	13,150	
Fresno Res.	Milk River	127,200	67,520	131,900
Nelson Reservoir	Milk River	66,800		33,860
Mystic Lake	W. Rosebud Creek	20,800	2,650	2,310
Conéy Res.	Red Lodge Creek	27,500	11,790	10,720
Tongue Res.	Tongue River	73,900	8,320	24,880
Sherburne Lake Res.	Swiftcurrent Creek	66,100		
Lake Helena	Missouri River	10,450	3,890	1,980

COLUMBIA RIVER BASIN

Georgetown Lake	Flint Creek	31,000	22,140	20,970
E.Fk. Rock Cr. Res.	E. Fk. Rock Cr.	16,040		
Nevada Cr. Res.	Nevada Creek	12,600	10,820	
W.Fk. Bitterroot Res.	E.Fk. Bitterroot	31,700	15,000	20,500
Como Lake	Rock Creek	34,800		
Flathead Lake(Sommers)	Flathead River	1,791,000	1,017,000	948,400
Little Bitterroot	Little Bitterroot	37,100*	36,120	25,620
Dry Fork Res.	Dry Fork Creek	6,700*	5,420	5,560
Mission Valley Reservoirs	Mission Valley (Flathead River)	105,000**	39,710	60,720

* Comprise two reservoirs on Dry Creek.

* Comprise two reservoirs on Little Bitterroot River.

** Comprise nine small reservoirs on Mission Valley Project Indian Reclamation Service.

PRELIMINARY ESTIMATES OF RUNOFF AT A NUMBER OF
REPRESENTATIVE GAUGING STATIONS IN MONTANA

<u>Name of Stream</u>	<u>Period and Volume Forecast In</u>	
	<u>Acre Feet</u>	
	<u>May - June</u>	<u>July-August-Sept.</u>
MISSOURI BASIN		
Gallatin River at Gateway	249,000	92,436
Hyalite Creek at Ranger Station	18,000	9,500
Madison River at West Yellowstone	92,200	72,500
North Fork Musselshell at Delpine	4,500	2,200
Yellowstone River at Corwin Springs	1,250,000	800,000
Clark Fork River at Chance	52,000	<u>May-June-July</u>
Red Lodge River above Cooney Reservoir	22,500	10,000
Missouri River at Fort Benton	2,200,000	-----
COLUMBIA RIVER BASIN		
	<u>April-June</u>	<u>April-September</u>
Bitterroot River at Darby	468,000	613,000
Clark Fork above Missoula	1,433,000	2,062,000
Clark Fork below Missoula	2,500,000	3,430,000
Clark Fork at St. Regis	3,300,000	4,440,000
Flathead River at Columbia Falls	5,100,000	7,218,000
Flathead River at Polson	5,300,000	8,650,000
Clark Fork River at Plains	8,865,000	12,460,000
Clark Fork River at Heron	11,330,000	14,200,000

Note: All estimated volumes subject to a discrepancy of plus or minus 10 to 15%.

U.S. DEPARTMENT OF COMMERCE, WEATHER BUREAU
STATE OF MONTANA, MONTHLY PRECIPITATION FOR
OCTOBER, 1948 - APRIL 30, 1949

STATIONS	OCTOBER 1948		NOVEMBER 1948		DECEMBER 1948		JANUARY 1949		FEBRUARY 1949		MARCH 1949		APRIL 1949	
	Pre.	Dep.	Pre.	Dep.	Pre.	Dep.	Pre.	Dep.	Pre.	Dep.	Pre.	Dep.	Pre.	Dep.
<u>WEST OF DIVISION</u>														
Butte	.36	-0.43	.41	0.00	0.94	.50	0.50	0.10	0.91	.49	.64	0.00	0.64	-.42
Deer Lodge	.06	-0.62	.77	0.22	1.14	.63	0.53	-0.06	0.86	.43	.08	-0.53	0.50	-.32
Hamilton	.44	-0.47	1.53	9.72	1.32	.61	0.22	-0.55	1.57	.85	1.09	0.50	0.10	-.77
Kalispell	.40	-0.66	1.50	0.15	1.02	-.43	1.07	-0.50	1.28	.17	1.30	0.35	0.58	-.28
Missoula	0.23	-0.72	0.92	0.02	1.04	.09	0.34	-0.51	0.97	.17	0.97	0.15	0.12	-.78
<u>CENTRAL DIVISION</u>														
Babb	0.10	-1.08	0.44	-0.55	0.31	-.63	1.24	----	0.71	-.11	0.69	-0.42	0.53	-1.13
Dillon Normal Sch.	0.15	-0.69	0.35	-0.45	0.95	.21	0.62	-0.21	0.57	-.25	0.20	-0.96	0.51	-1.17
Fort Benton	0.04	-0.68	0.70	0.11	0.63	.12	0.99	0.33	0.78	.29	1.08	-0.54	0.32	-0.80
Great Falls	.08	-0.78	0.39	-0.29	0.53	-.12	1.40	----	0.79	.24	1.11	0.25	0.41	-.74
Havre	.09	-0.58	-0.26	0.35	-0.52	-.09	0.44	-0.29	0.49	-.03	0.41	-0.10	0.05	-.94
Helena WBO	.05	-0.56	0.61	0.16	0.80	.33	0.66	0.10	0.59	.22	0.69	-0.10	0.61	-.51
Livingston	.21	-0.96	0.67	-0.13	0.88	.28	1.14	----	0.42	-.12	1.03	0.17	1.34	.02
Lewistown Arpt.	.01	-0.35	1.02	0.81	----	----	----	----	----	----	----	----	----	----
Mystic Lake	.24	-1.60	1.13	-0.45	1.77	.73	1.40	----	1.69	.61	3.32	1.28	1.44	-1.30
<u>EASTERN DIVISION</u>														
Billings #2	.01	-1.30	0.18	0.18	0.73	.23	1.46	0.83	0.48	.06	0.69	-0.15	0.36	-.94
Circle	.06	-0.79	0.63	.06	0.45	-.30	0.57	----	0.31	-.30	0.24	-0.76	0.00	-1.14
Frazer	.03	-0.85	0.63	.10	0.95	.56	0.55	0.14	0.46	-.12	0.25	-0.45	T	-0.96
Malta	.00	-0.73	0.25	-.16	0.58	.12	0.16	-0.31	0.28	-.09	0.17	-0.37	T	-.80
Mildred	T	-0.73	1.67	1.30	0.41	.09	0.98	0.64	0.41	.14	0.34	-0.08	0.14	-1.03
Medicine Lake	0.16	-0.59	1.15	0.82	0.48	.20	0.08	-0.23	0.14	-.18	0.94	0.53	0.06	-.83
Miles City	T	-0.90	0.49	-.08	0.31	-.32	0.85	0.19	----	----	0.51	-0.35	0.29	-.83
Fort Peck	T	-0.75	0.14	-.33	0.16	-.12	0.16	----	0.23	-.04	-0.15	-0.35	T	-1.08

NOTE: Departure from normal figures without a minus sign (-) are plus.

MISSOURI R. & IN
DRAINAGE BASIN
AND
SNOW COURSE **

SNOW MEASUREMENTS

DRAINAGE BASIN		State	No.	Elev.	Date of Survey 1949	Snow Depth (In.) 1949	Water Content (Inches)				Years of Record	
AND SNOW COURSE **	Change Since * April 1						Past Records 1948 1947	Average Data				
								May 1 1949	May 1 %Avg.			
Jefferson River												
Elk Horn	Montana	11	8450	5/2	14.8	-8.1	5.5	8.8	5.1	108	12	
Gibbons Pass	"	13	7100	4/29	48.1	-6.1	22.9	21.3	18.4	124	1	
Goldstone	"	22	8100	5/2	38.0	-3.6	15.8	----	----	----	1	
Jahnke Creek	"	24	7340	5/2	12.6	-9.0	5.4	----	----	----	1	
Lakeview Canyon	"	15	6930	5/5	6.8	-10.5	2.2	----	----	----	1	
Lakeview Ridge	"	14	7400	5/5	6.6	-7.6	2.4	----	----	----	1	
Pipestone Pass	"	14	7200	4/29	7.4	-6.9	1.0	----	1.7	59	9	
Selway Junction	"	21	6800	5/2	27.5	-0.8	12.0	----	----	----	1	
Terrell Creek	"	20	6650	5/2	0	-6.0	0	----	----	----	1	
Madison River												
Hebgen Lake	Montana	7	6550	5/1	2.6	-13.4	1.2	7.4	2.5	48	14	
Norris Basin	"	7	7500	5/1	6.1	-7.8	2.5	----	----	----		
21 Mile	"	6	7150	5/2	26.7	-7.8	12.7	12.6	10.0	126	14	
West Yellowstone	"	8	6700	5/2	8.9	-9.0	4.1	4.5	3.1	76	14	
Gallatin River												
Devil's Slide	Montana	1	8100	5/2	52.8	-0.6	20.2	30.6	21.2	95.5	14	
Hood Meadow Ext.	"	2	6600	5/3	5.4	-9.2	1.7	9.9	4.4	38.6	14	
21 Mile	"	6	7150	5/2	26.7	-7.8	12.6	----	10.1	126	14	

* Location of course shown on Index Map

** Change since April 1 indicates the LOSS (-) or GAIN (no sign) during the month of April.

SNOW MEASUREMENTS

MISSOURI BASIN
DRAINAGE BASIN
AND
SNOW COURSE **

DRAINAGE BASIN AND SNOW COURSE **				State	No.	Elev.	Date of Survey 1949	Snow Depth (In.) 1949	Water Content (Inches)			Years of Record	
									May 1 1949	Change Since * April 1	Past Records 1948	Average Data May 1 Avg. %Avg.	
<u>Main Stem Above Great Falls</u>													
Chessman	Montana	18	6250	5/4	0	-7.6	4.6	1.2	1.3	----	13		
Kings Hill	"	25	7950	5/3	33.2	-4.1	14.6	----	10.5	122	8		
Pipestone Pass	"	14	7200	4/29	7.4	-6.9	----	----	1.7	59	9		
Rimini, Lower	"	15	6250	5/2	0.6	-8.6	2.1	2.1	1.6	113	13		
Rimini, Middle	"	16	6800	5/3	10.2	-9.3	8.9	11.8	6.3	56	13		
Rimini, Upper	"	17	8000	5/3	19.0	-7.7	14.6	14.6	9.7	73	13		
Stemple Pass	"	16	6900	5/4	18.2	-7.2	8.3	7.8	5.1	124	14		
<u>Marias River</u>													
Marias Pass	Montana	21	5250	5/1	27.3	-9.3	15.3	11.5	7.8	155	14		
Snow Lab. 13	"	16	5240										
<u>Sun River</u>													
Goat Mountain	Montana	20	7000	5/2	15.3	-9.7			3.2	178	6		
<u>Yellowstone River</u>													
Canyon	Wyoming	2	7750	5/1	26.3	-5.2	10.8	----	----	----			
Lake	"	1	7850	5/1	21.3	-7.6	----	----	----	----			
Sylvan Pass	"	32	7100		25.0								
Independence	Montana	9	8000	5/1	38.7	----	----	----	----	----	1		
<u>Clark Fork of Yellowstone</u>													
Cook City	Montana	11	7890	4/29	11.7	-7.0	----	----	----	----			
<u>St. Mary River</u>													
Iceberg Lake #3	Montana	23	6500	5/5	44.8	----	----	----	----	----			
Mount Allen #7	"	21	7000	5/4	84.9	----	----	----	----	----			
Piegan Pass #4	"	20	5000	5/4	25.2	----	----	----	----	----			
Piegan Pass #6	"	19	6500	5/4	66.9	----	----	----	----	----			
Ptarmigan #8	"	22	5800	5/5	72.0	----	----	----	----	----			
AVERAGE												26	
31.5												112	
24.6													
33.5													

** Location of course shown on Index Map

** Location of course shown on Index Map

* Change since April 1 indicates the LOSS (-) or GAIN (no sign) during the month of April.

SNOW MEASUREMENTS

COEUR D'ALENE BASIN

DRAINAGE BASIN

AND

SNOW COURSE **

DRAINAGE BASIN AND SNOW COURSE **		State	No.	Elev.	Date of Survey 1949	Snow Depth (In.) 1949	May 1 1949	Change Since * April 1	Water Content (Inches)			Years of Record	
									Past Records		Avg.		%Avg.
									1948	1947			
Kootenai River													
Baree Mountain	Montana	1	6000	5/2	105.0	50.1	-5.1	47.2	51.8	36.7	137	12	
Bluebird Basin	"	2	6800	5/2	88.1	36.7	-1.4	---	---	33.5	110	10	
Ferguson	Canada		3000	4/30	23.0	11.7	-9.4	18.5	14.3	---	---	2	
Fernie	"		3500	5/1	NO SNOW		-7.7	3.9	0	---	---	2	
Gray Creek	"		5100	4/29	47.2	18.4	-2.1	20.0	---	---	---	2	
Marble Canyon	"		5000	4/29	25.8	10.2	-2.8	10.3	4.6	---	---	3	
Gerrard	"		6000		NO SNOW		-12.5	---	---	---	---		
Red Mountain	Montana	10	6000	5/2	39.7	16.3	-5.0	16.2	18.8	14.1	116	12	
Sandon	Canada		3500	4/30	NO SNOW		-12.8	4.2	0	---	---	2	
Sinclair Pass	"		4500	4/30	0.5	0.2	-3.4	0.8	T	---	---	2	
Sullivan Mine	"		5100	4/30	19.7	7.9	-7.3	9.9	---	---	---	2	
Upper Elk River	"		----	4/30	NO SNOW		-8.0	5.5	---	---	---	2	
Upper Clark Fork													
Chessman	Montana	1	6200	5/4	0	0	-7.6	4.6	1.2	1.3	---	13	
Pipestone Pass	"	5	7200	4/29	7.4	1.0	-6.9	---	---	1.7	59	9	
Skalkaho	"	6	7258	4/28	48.8	24.8	-9.8	26.7	30.7	21.9	123	12	
Slide Rock-	"	8	7100	5/2	32.2	12.2	-6.6	---	---	---	---		
Stemple Pass	"	10	6900	5/4	18.2	6.3	-7.2	8.3	7.8	5.1	124	14	
Storm Lake #2	"	11	7780	4/28	33.1	12.7	-3.3	21.2	18.0	13.8	92	10	
Stuart Mt. #1	"	12	6500	5/3	51.4	22.2	-1.2	31.1	31.7	26.1	85	12	
Rimini, Lower	"	14	6250	5/2	0.6	0.2	-8.6	2.1	2.1	1.6	13	13	
Rimini, Middle	"	15	6800	5/3	10.2	3.5	-9.3	8.9	11.8	6.3	56	13	
Rimini, Upper	"	16	8000	5/3	19.0	7.1	-7.7	14.6	14.6	9.7	73	13	

**Location of course shown on Index Map

* Change since April 1 indicates the LOSS(-) or GAIN (no sign) during the month of April

SNOW MEASUREMENTS

COLUMBIA BASIN

DRAINAGE BASIN

AND

SNOW COURSE **

DRAINAGE BASIN AND SNOW COURSE **		State	No.	Elev.	Date of Survey 1949	Snow Depth (In.) 1949	Water Content (Inches)				Years of Record	
							Change Since * April 1	Past Records		Average Data		
								May 1 1949	1948	1947		May 1 Avg. %Avg.
<u>Bitterroot River</u>												
Gibbons Pass	2	7100	4/29	48.1-	-6.1	22.9	21.3	25.4	18.4	124	12	
Packers Mdw.		5700	4/30	40.8	-9.7	24.7	21.9	13.5	12.7	212	12	
Skalkaho	7	7258	4/28	48.8	-9.8	24.8	26.7	30.7	21.9	113	12	
Stuart Mt. #1	8	7400	5/3	51.4	-1.2	22.2	31.1	31.7	26.0	85	12	
<u>Flathead River</u>												
Desert Mountain	3	5600	5/2	26.6	-4.6	10.8	14.9	16.0	8.3	130	12	
Hell Roaring Cr. Div.	6	5770	5/2	56.4	-6.3	26.7	31.0	32.0	25.7	104	7	
Marias Pass	10	5250	5/1	27.3	-9.3	12.1	15.3	11.5	7.8	155	14	
<u>Pend Oreille River</u>												
Baree Mountain	1	6000	5/2	105.0	-5.1	50.1	47.2	51.8	36.7	137	12	
Benton Springs		4900	5/2	40.0		26.4	20.6	6.0	11.7		12	
Freezeout Mt.	6	7000	5/2	80.3	-1.3	36.3	30.3	40.6	26.5	137	11	
Lookout		5250	4/29	74.0	-2.1	36.6	34.8	27.2	22.0	156	12	

**Location of course shown on Index Map

* Change since April 1 indicates the LOSS (-) or GAIN (no sign) during the month of April.

APPENDIX

Location of snow survey courses in adjacent basins and not shown on INDEX MAP, but shown in tabulated data.

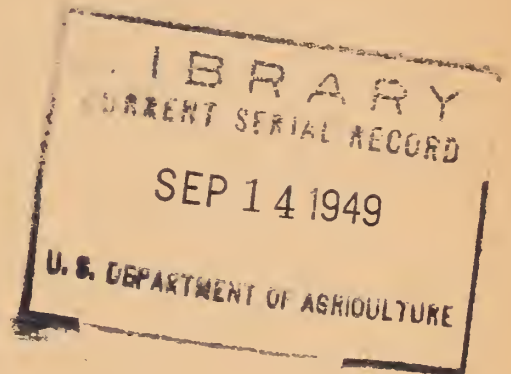
COURSE	STATE	NO.	ELEV.	LOCATION			BASIN
				Sec.	Twp.	Range or Lat. and Long.	
<u>JEFFERSON RIVER</u>							
Camp Creek	Idaho		6800	21	13N 36E		Snake River
<u>MADISON RIVER</u>							
Valley View	Idaho		6500	7	15N 44E		Snake River
Big Springs	Idaho		6500	34	14N 44E		Snake River
<u>YELLOWSTONE RIVER</u>							
Canyon	Wyoming	2	7750	44-54	110-37		Yellowstone Park
Lake	Wyoming	1	7850	44-44	110-30		Yellowstone Park
Lupine Creek	Wyoming	3	7300	44-54	110-37		Yellowstone Park
Sylvan Pass	Wyoming	32	7100	12	52N 110W		Shoshone River
<u>KOOTENAI RIVER</u>							
Ferguson	Canada		3000	50-40	117-30		Upper Kootenai
Fernie	Canada		3500	49-31	115-01		Upper Kootenai
Gray Creek	Canada		5100	49-37	116-41		West Kootenai
Kimberly	Canada		3750	49-41	115-59		East Kootenai
Gerrard	Canada		6000	50-36	117-16		Upper Kootenai
Marble Canyon	Canada		5000	51-12	116-09		East Kootenai
Nelson	Canada		3050	49-25	117-14		West Kootenai
Sandon	Canada		3500	49-59	117-13		Upper Kootenai
Sinclair Pass	Canada		4500	50-40	115-58		East Kootenai
Smith Creek	Idaho		4800	29	64N 3W		Kootenai
Sullivan Mine	Canada		5100	49-43	116-01		East Kootenai
Upper Elk River	Canada		4400	50-01	114-56		East Kootenai
<u>PEND OREILLE RIVER</u>							
Benton Springs	Idaho		4900	30	28N 3W		Priest River
Lookout	Idaho		5250	4	47N 6E		Clark Fork
Nelson	Canada		3050	49-25	117-14		West Kootenai
Smith Creek	Idaho		4800	29	64N 3W		Kootenai
<u>ST. MARY RIVER</u>							
Iceberg Lake	Montana	23	6000	48-50	113-42		Saskatchewan River
Mount Allen	Montana	21	7000	48-44	113-40		Saskatchewan River
Piegian Pass #4	Montana	20	5000	48-46	113-40		Saskatchewan River
Piegian Pass #6	Montana	19	6500	48-45	113-42		Saskatchewan River

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FEDERAL-STATE
COOPERATIVE SNOW SURVEYS and
IRRIGATION WATER FORECASTS

For
MONTANA

MAY 15, 1949



by

Montana Agricultural Experiment Station
and
Division of Irrigation, Soil Conservation Service
United States Department of Agriculture

in cooperation with

U.S. Forest Service....U.S. National Park Service....U.S. Bureau
of Reclamation....U.S. Geological Survey and State
Engineer of Montana

and

Comptroller of Water Rights, British Columbia

MAY 15 SUMMARY
OF IRRIGATION WATER SUPPLY FOR MONTANA

Snow survey measurements were made on or about the 15th of May, at key courses in the Upper Missouri and Upper Columbia River Basins to obtain additional data on irrigation water supply. Although there is little or no comparative data these measurements show that on the high elevation courses there is a good supply of stored water for this season as of May 15. The Upper Columbia Basin shows a better coverage than does the Upper Missouri. Narrative data by some snow surveyors indicate that the north exposed slopes are well covered with snow at this date.

The ideal melt season during April and the first 15 days of May has brought the snow melt water out of the mountains without exceptional high peak flows except on the Upper Kootenai where a short peak above bankful capacity was reached. During the first week in May, some lowlands were inundated. Aside from bankful capacities being exceeded in local areas, the danger of extremely high peak flows has passed from the snow melt water in the Upper Columbia. However, a prolonged and heavy rain would cause considerable damage at this time in this basin. On the Upper Missouri Basin, with considerable snow at high elevations and approaching the rainy season of June, the probability of high peak flows still exists in local areas.

MON TANA SNOW SUR VEYS May 15 , 1949

COLUMBIA BASIN
DRAINAGE BASIN
AND
SNOW COURSE 43

SNOW MEASUREMENTS

State	No.	Elev. Survey 1949	Date of Survey 1949	Snow Depth (In.) 1949	Water Content (Inches)			
					May 15 1949	Per Cent Density	Change Since May 1* 1948	May 1 1949
Canada		6000	5/14	67.6	47.1	69	10.5	49.1
"		4100	5/15	8.3	4.5	55	-8.1	27.2
"		5400	5/14	NO	SNOW	---	-2.5	10.3
"		5000	5/14	2.5	1.1	44	-9.1	12.1
"		5100	5/15	2.4	0.9	37	-7.0	9.9
"		4500	5/15	NO	SNOW	---	-0.2	0.8
Kootenai River								
Baree Mountain	1	6000	5/16	75.9	40.8	54	-9.3	47.2
Bluebird Basin	24	6800	5/16	53.1	24.3	46	-12.4	---
Upper Clark Fork								
Storm Lake	11	7780	5/12	20.9	7.7	37	-5.0	21.2
Slide Rock Mt.	8	7100	5/16	15.0	4.8	32	-7.4	---
Stemple Pass	16	6900		NO	SNOW			
Stuart Mt.	13	7400	5/16	14.8	7.5	51	-14.7	31.1
Skalkaho Summit	7	7258	5/17	22.4	14.4	61	-10.4	26.7
Bitterroot River								
Packers Meadow		5700	5/18	3.2	2.0	62	-22.7	21.9
Stuart Mt.	13	7400	5/16	14.8	7.5	51	-10.4	26.7
Flathead River								
Desert Mt.	3	5600	5/16	NO	SNOW	---	-10.9	14.9
Baree Mt.	1	6000	5/16	75.9	40.8	54	-9.3	47.2
Benton Springs		2344	5/18	NO	SNOW	---	-26.4	20.6
Freezeout	6	7000	5/16	44.8	24.2	54	-12.1	30.3
Hell Roaring Cr.	6	5770	5/17	18.9	9.8	53	-16.9	31.0
Lookout		5250	5/17	28.0	15.6	56	-21.0	34.8

* Change since May 1 indicates the LOSS (-) or GAIN (no sign) during the month of May.
** Location of course shown on Index Map.

MONTANA SNOW SURVEYS May 15, 1949

MISSOURI BASIN DRAINAGE BASIN AND SNOW COURSE **	State	No.	Elev.	Date of Survey 1949	Snow Depth (In.) 1949	SNOW MEASUREMENTS			
						Water Content (Inches)		Change Since May 1 1948	May 1 1949
						May 15 1949	Per Cent Density		
Jefferson River	Montana	24	7340	5/16	NO	SNOW	----	----	12.6
Jahnke Creek	"	22	8100	5/16	21.2	12.4	58	-3.4	15.8
Goldstone	"	20	6650	5/16	NO	SNOW	----	0.0	0
Terrell Creek	"	21	6800	5/16	NO	SNOW	----	-12.0	12.0
Selway Junction	"	11	8450	5/13	NO	SNOW	----	-5.5	5.5
Flk Horn								8.8	
Madison River	Montana	6	7150	5/17	2.7	1.3	48	-11.4	12.7
Twenty-One Mile									
Gallatin River	Montana	6	7150	5/17	2.7	1.3	48	-11.4	12.7
Twenty-One Mile									
Missouri Main Stem	Montana	25	7950	5/16	10.8	4.3	40	-8.5	12.8
Kings Hill	"	16	6900	5/16	NO	SNOW	----	-6.3	6.3
Stemple Pass									
Marias River	Montana	21	5250	5/16	2.2	1.0	45	11.1	12.1
Marias Pass									
Yellowstone River	Wyoming	2	7750	5/15	1.5	0.5	30		9.7
Canyon #2	"	1	7850	5/15	1.0	0.4	25		7.6
Lake									

* Change since May 1 indicates the LOSS (-) or GAIN (no sign) during the month of May.

** Location of course shown on Index Map.

